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KNOWING THINGS.

I.

IN dealing with things *as known*, we place ourselves at once at the pragmatic point of view—things as they must be *taken* in our systematic experience. In other words, we try to unlock the reality of things by means of their qualities. This pragmatic way of taking things has at least the advantage of convenience. It is the only *approach*, whether it is the whole truth or not.¹ And by qualities we mean the constant and describable ways in which we must take nature in its concrete contexts. They are differentiated and made significant through the specific conduct which we must adopt in varying situations, sensory, chemical, or electrical. They are diverse or homogeneous just in so far as we must take them as such.

We must distinguish the relation of a thing to its qualities from other forms of diversity and unity. We must not confuse qualities with logical consequences, which exist only as part of a cognitive context; nor must we confuse qualities with the species of a genus, for the qualities cannot be regarded as existing individually apart from their complex. We cannot regard the qualities as effects of the thing, because the thing apart from the qualities is a mere abstraction. We cannot regard the qualities as external parts of a whole, because the qualities only exist as interpenetrating in the one space-unity. The thing is not the sum of our abstractions, such as independent qualities would have to be. Nor are the qualities, as sometimes stated, the behavior of the thing; they must include how the thing *can* behave under definite conditions as well as its actual behavior. They are not the behavior in the abstract, but what a thing must be taken as, or acknowledged, in its specific behavior. Qualities are not inert ideas, as Berkeley supposes, but energies that can

¹ For a fuller discussion of the pragmatic method, see the author's *Truth and Reality* (Macmillan, 1911), Chapters IX and X. This paper is part of a volume, entitled *A Realistic Universe*, soon to appear.

be tapped under definite conditions. Qualities, moreover, are not merely the actual, but also the potential energies of things, their possible differences to other contexts. When we see the diamond, we expect it also to cut glass, though the visual qualities do not cut glass.

The theory that consciousness is perspicuous, and does not alter the qualities intuited, is true enough, if you mean by consciousness the bare character of awareness. But this does not mean that qualities are static entities, to be intuited in the abstract, as the old realism, which has had a recent revival, supposes. To regard qualities as abstract intuitions is equivalent to holding that energies can be intuited as at work, when they are not at work. While we can abstract our awareness from the energetic continuities, sensory or extra-organic, that does not save us the trouble of taking account of these specific continuities and giving a definite description of them. This is precisely the task of science. And while all qualities are not dependent for their existence upon our sense continuities, as we shall show later, we have no way of intuiting the qualities of things, except by our awareness of such sense continuities. Things by themselves have no properties. They cannot even be conceived as having existence, as this is a dynamic relation—the difference which a fact makes to a context, including in the case of perception the context of our sense energies. And qualities without contexts are a pragmatic contradiction. They are differences which make no difference—non-entities. All that realism can insist upon is that our taking account of the qualities—their figuring in our cognitive context—does not constitute them. And with this probably no one now disagrees.

As a thing may exist in several contexts at the same time, we come to conceive it as having simultaneous as well as successive diversity of qualities. Thus a bit of honey may exist in a number of sensory contexts at once. We see it, touch it, taste it, smell it at the same time. The honey in the meantime is undergoing certain physical and chemical changes independent of the sensory contexts. And so long as this diversity can be attended to at once—fulfils one interest—we do not regard it as fatal to the unity of the thing.

Is the thing its qualities? In the first place, if we strip the thing of its qualities, of its possible reactions, what is left is zero—position without content. To try to conceive a surd or core as remaining becomes self-contradictory. When we try to make clear to ourselves what we mean by such a core, we find that it is a certain group of qualities, the conditions for the appearance of which are more constant in our experience than those of the rest. Thus the conditions for the touch-motor qualities are simpler and more often repeated than those for the visual qualities. The conditions for such physical qualities as gravity and heat conduction must be conceived as still more universal. Owing to the law of habit, the qualities whose conditions are more constant become the standard of reference for those whose conditions are more intermittent. They come to constitute for us the substance of the thing. No other intelligible meaning can be given to the conception of substrate, if qualities are the ways a thing must be taken in its conduct. There can be nothing in the thing not capable, theoretically at least, of being shown in its conduct. That it is *one* thing, and not a mere sum of discrete qualities, is itself one of the ways in which we must take a thing. It is because qualities can be taken as interpenetrating in one space, as fulfilling one purpose, that we speak of one thing. This, however, does not preclude us from being interested, in other connections, in the diversity of ways in which a thing can be taken. No mere mystical coalescence on the part of our states of consciousness would destroy the diversity of functions on the part of a thing.

If you identify a thing with its qualities, in the second place, you must be careful to include all the possible ways of taking a thing. The ways in which things can be taken not only connect them with our sensory contexts, but also with other contexts, independent of our perception. Their relation to these contexts may, for some purposes, be more important than the relation to sense. We must learn to take the thing at its face value, as the various ways in which it *proves* itself in its variety of contexts, without inventing hidden essences, on the one hand, or making abstract entities of our ways of taking things, on the other.

Does human nature create the qualities? It is true that some qualities, involving a high degree of organic organization, are only present in man and the higher animals, as in the case of color. Our perceptual qualities in general do involve a relation to the organism. But this condition is just as real and objective, so far as our cognitive meaning is concerned, as any context can be. The perceptual qualities are just as independent of the cognitive context as the chemical. It is true, further, that we have perceptual illusions. But this is due to no "faking" of qualities, but to the fact that qualities can only be *known* through the machinery of complication and association. As some qualities may occur in different contexts, it is possible that the wrong system of associates may be called up at any one time, either as the result of habit, or from the momentary set of attention, which further experience shows do not co-exist in the particular thing. But this is a problem in our *knowing* of the qualities and does not concern their reality or objective co-existence.

That we do not know all the properties of things, owing to our finite instruments—our senses and our artificial instruments—and owing to the indefinite number of possible situations, must be admitted. This means relative agnosticism; and to this, all honest science must subscribe. Yet we may still maintain that our knowledge is of the real, so far as it goes; that it approximates reality in our systematic effort for truth, and does not lie in another dimension from the object which we attempt to know. The unknown is more of the same sort of thing as the known; and however far we may be from knowing all the properties of things in their possible contexts, yet the thing can be taken as having the properties we do know. Human nature does not create qualities, though it is an indispensable condition for their significance.

Absolute agnosticism, on the other hand, has always maintained that, even though our research were complete as regards the seeming nature of things, yet we would be as far from knowing the real things as ever. The thing is something besides its apparent qualities, were they all known. It is difficult to understand the mental attitude implied in this position. If it means conceiving

a thing apart from its properties, then what is left is zero, and there is nothing mysterious or unknowable about zero. If, on the other hand, it means that the thing-in-itself does have properties, but that these are different from those which we perceive; that human nature has created the qualities as we have them, and that the true qualities could only be perceived by a consciousness entirely different from our own, which seems to be Kant's position—if such is the assumption, all we can say is that it is entirely gratuitous and has no pragmatic value. In any case, the only fruitful method of procedure is to assume that qualities are such as we must take them in relation to our systematic conduct. The agnosticism of the unconditioned, in the sense of a reality outside the matrix of concrete relations, is a fiction of the faculty of abstraction. We must hold, on the contrary; that reality is known in its concrete determinations. And we are ever striving to increase our knowledge of things by trying them out in new determinate situations. It is by such experiment and observation that we find the melting point and freezing point, the resistance, the complexity, the decomposability, and the coherence of the world as we have it.

Whether the persistence of certain ultimate units, such as atoms or electrons, turns out to be more than fiction or not, the reality and persistence of qualities is a *sine qua non* of science. Not only can we predict that a certain set of qualities shall make its appearance, with the Aladdin change of conditions, but what to me is still more striking, we can predict that certain identical qualities shall *persist*, as a set, through the protean transmutation of things, with their characteristic energies.

Such is the case in chemistry with salts in the wider sense, including acids and bases. To quote from Ostwald: "Salts are, therefore, characterized by the fact that in solution their components give individual reactions which are in each case independent of the other component present in the salt. And this relation is a reciprocal one; the second component also shows its own reactions independent of the first. These components of the salts which react independently of one another are called *ions*."¹

¹ Ostwald, *Principles of Inorganic Chemistry* (1902), English translation, p. 189.

This persistence of qualities as seemingly individual energies is shown even more strongly in the case of biological heredity. The chromosome-characters of the germ cell, which are now believed to constitute the most important part of the factors in the transmission of characteristics including sex, have been shown by Boveri to constitute a qualitative constellation; and the combination of characters in the generated individual has been shown to depend upon a particular combination of chromosomes. These continue to act qualitatively so as to build out the diversity of organs and functions in the new organism, and can be traced, throughout the development of the organism, by microscopic examination of the cell. Conversely, the elimination of certain characters has been proven to cause the lack of the corresponding organs and functions. Mendel's law formulates in general how the "unit characters" appear in the reproduction of individuals. In crossing the white and black race, the offspring would tend to be two mulattoes, one white, and one black. In crossing the mulattoes there would be three mulattoes, one white, and one black, etc.¹ Thus in part of the individuals the original characters, so far as color is concerned, tend to reappear intact. And so in regard to the other characteristics in which they differ. Moreover, in the long run, the tendency will be, except, perhaps, in a few cases where the blend may stick, for the original characters to assert themselves, and the race to run pure. This is quickly accomplished in the case of the mule owing to sterility.

The characters or qualities thus constitute the pragmatic significance of the thing. And if science can abstract the characters or qualities so as to predict the behavior of nature in its stages of change and complexity, things are of secondary importance. Or rather, the identity of characters *is* for science the substance. Even the chemical elements have fallen into a natural series on the basis of identical characters. Whether these elements prove ultimate or not, the qualities and the predictions based upon them remain as of prime importance in conceptual description. We must start with qualities and hold the individuals, as far as we can, in the net of our identities. Concrete

¹ In the first instances this would amount only to a variation in shades.

individuals, on the other hand, seem to come and go. They probably never quite repeat themselves. What is predictable are the recurrent qualities—the *karma* as the Hindus called it, in the case of moral qualities.

While this abstract view of qualities, however, is convenient in our ignorance in unlocking the secrets of nature, we cannot regard it as metaphysically final. In reality there are not "unit characters," as Mendel calls recurrent qualities, but dynamic *situations* hanging together by means of certain overlapping identities. Thus it has been shown by Professor E. B. Wilson that chromosome-characters are not sufficient by themselves to determine heredity, but we must take account as well of the potentials of the protoplasmic context in which they exist, though of course this would not prevent our having predictability by taking account of the chromosome-characters alone, the protoplasmic conditions remaining the same. The whole concreteness of the situation is not necessary for prediction. If it were, we could not have science. For ethical and æsthetic purposes, again, the individuals, whether transient or permanent, may have final and eternal significance.

II.

Having now defined in general the nature of qualities, I wish to say a word about the problem of their *relative importance*. The distinction between primary and secondary qualities is an ancient one. There have been several reasons for making some qualities more important than others. One reason offered in the past is the mode of intuition. The primary qualities are supposed to be immediately intuited, according to such writers as Thomas Reid,¹ while the secondary qualities are supposed to be due to our sense reactions. According to this theory the primary qualities would be not only copies but identical with reality, while secondary qualities are only ways in which the primary qualities affect our sensibilities. Thomas Brown, however, al-

¹ To use Reid's own language, "Our senses give us a direct and distinct notion of the primary qualities, and inform us what they are in themselves: but of the secondary qualities, our senses give us only a relative and obscure notion. They inform us only that they are qualities which affect us in a certain manner." *On the Intellectual Powers*, Essay II, § 17.

ready recognized that there is no essential difference between qualities so far as the mode of perception goes.¹ They are all alike in being reactions of our organism upon the selected stimuli. Nor is there anything inherently mean about sense that would make qualities subjective or unreal, just because they are sensed. Again, qualities that are perceived by means of a number of senses have been thought to have a superior reality to those perceived only through one sense. Thus, form, size, position and motion are perceived by sight and touch alike. But solidity, which has figured as one of the most important of the primary qualities, can only be had by means of the sense of active touch. So perception by a number of senses cannot be all-important.

It has been argued again that the more generic sense qualities are more real than the more specific ones. Because the generic sense qualities lend themselves best to mathematical description, it has been supposed that they come nearest to giving us the reality of nature. Secondary qualities on the whole are due to greater specialization of our sense organs and have seemed to be more subjective. But, on the one hand, some of the generic qualities do not seem to figure high in the scale of information. Thus pain and temperature are among the most generic of our qualities, but they have not been recognized as belonging to the primary list. Because the condition for the manifestation of the qualities are complex, it does not follow that the qualities are less real. The conditions for the manifestation of electrical properties are exceedingly complex, but we do not on that account doubt the reality of electricity.

Again, qualities have been deemed subjective or objective according to their clearness or distinctness to the attention. The primary qualities, according to Descartes, are clear and distinct, while the secondary qualities are held to be confused. But according to this, color and tone rank at the head of the list, because there we can distinguish more qualities and arrange them in a serial order with greater success than we can in the other senses.

¹ *Lectures on the Philosophy of the Human Mind*, 1828, pp. 253 f. "I cannot discover anything in the sensations themselves, corresponding with the primary and secondary qualities, which is direct, as Dr. Reid says, in *one* case and *relative* in the other. All are *relative* in his sense."

This is especially true of color, where the largest range of qualitative discrimination and arrangement is possible; but neither color nor tone were included in the old list of primary qualities, though they permit of the greatest analysis.

More convincing is the argument based on their value for prediction. The primary qualities, according to Locke, are constant and inseparable while the secondary qualities vary. While this is true, to a certain extent, shape, mass, and weight cannot be regarded as invariably present in the physical objects with which we must deal. We cannot speak of electricity, for example, as having either shape, mass, or weight. These qualities, therefore, cannot be regarded as universal, as Locke would have us think. On the other hand, the qualities just mentioned are only constant when conditions are the same. In this respect, therefore, they have no particular advantage over the so-called secondary qualities. Mass varies with temperature and with pressure, and it has been shown recently to vary with velocity. Velocity approaching that of light has been found to increase the apparent mass. But that qualities differ under different conditions certainly does not indicate any subjectivity. If so, we would have to conclude with Berkeley that all qualities are subjective. Constancy for science always means repetition under determinate conditions.

One reason for the distinction between primary and secondary qualities has doubtless been the confusion between qualities and values. The so-called secondary qualities have been rejected in part, no doubt, because of their affective tone. This affective tone is especially prominent in connection with such qualities as those of taste or smell. But Aristotle, long ago, pointed out that touch may be the most sensuous of the senses, and therefore carry the most violent organic tone. We would, therefore, have to reject touch as well as taste. In fact, we would have to reject most of our sense qualities.

Evidently, one difficulty in making up the classical primary list, which for the most part remains approved, was the lack of scientific knowledge. Thus the old list fails to include weight, which has since come to be regarded as one of the most important

of the descriptive qualities. The old theory of primary qualities, moreover, presupposes the impact theory of physical changes, and so emphasizes mass as fundamental and universal. This will have to be revised in the light of our more recent knowledge of electricity and radio-activity. Such energies have brought to light a whole list of descriptive properties which were unthought of in the old catalogue. Certainly, impact would be far too gross a method of describing these reactions.

Whatever basis we can find for distinction, as to the importance of qualities, it is clear that any such basis must be relative, not absolute. It is relative to the purpose in question. What is primary for one purpose may be quite secondary for another purpose. Thus the importance of the mechanical qualities is quite secondary for æsthetic purposes, while color and tone become of very great importance. *Qualities must be taken as objective, if they enable us to identify and predict the things with which we must deal.* And in this the so-called secondary qualities may be fully as important as the so-called primary. Locke himself, in giving us the description of gold, does not fail to mention its yellowness. In the identification of a gas, the odor may be of the greatest importance. In identifying a solution, as a saline solution, the sense of taste may be worth all the rest. Qualities are objective just in so far as we must take them as objective. If they do not help us to identify an object they can no longer be called qualities. They must be reckoned on the side of value.

Some qualities can be taken as existing independently of the reaction of the human organism, though of course they must make a difference to the context of perception, too, in order to be known. This, however, is secondary in importance to their reactions in other contexts. Thus, we have more confidence in weight as determined by the mechanical scales than when indicated by our sensory quality of strain. For the purpose of science we must determine our conduct with reference to weight as fixed by scales. In determining temperature we place more reliance on the thermometer than on the sensory differences of hot and cold. And so in regard to size, we have more confidence

in size as determined by certain standard measures which are kept under artificial conditions than we have when we depend on sensory qualities. We must take such qualities as existing in contexts of their own, independent of the organism. This fact is doubtless what has given rise to the conception of primary qualities, and what makes Locke speak of these as archetypes which we copy, though even from this point of view there is not complete consistency, as can be seen in the case of heat and weight, which do not occur in Locke's primary list. The relation, however, is not that of copying. In fact, cognitively, the sensory differences would necessarily come first. The relation is rather that we can take the qualities which are sensed as identical with the qualities in other contexts, for example, that of the scales.

Such qualities as color or taste, on the other hand, must be taken as requiring specialized organic conditions. While the light-waves have qualities in other contexts, such as the camera film and various pigments, these are not the qualities of the sensible context of color. It does not at all follow, however, that because some qualities can only exist in the specialized context of certain sense organs that they are therefore subjective. Because we can only get water under the condition of H_2O , it does not follow that water is subjective. The context of our retina, with its rods and cones, in connection with light rays, is just as real a context and just as independent of our will as that of any other chemical or physical reactions.

There is only one meaning, so far as I can see, in which we could speak of subjective qualities. And that is, if we speak of *having* qualities as itself a quality. Thus some would say that the sky has the quality of having the quality, blue. In this case we can easily suppose an infinite series, because the quality of having qualities can be repeated on itself any number of times that imagination chooses to conjure. Obviously this is a purely subjective process—a creation of intellectual abstraction. It does not add anything to the existence of qualities.

Any quality may be treated as a sign or secondary to other qualities for the specific purpose in question. Thus visual qualities may be treated as secondary to tactual and these again to

chemical, when the purpose is the satisfaction of hunger. But for the purpose of enjoying a painting or reading a book, the tactual qualities become signs or secondary, for the normal person, to the visual. In space-perception, touch may serve to call up a sight map and this in turn to suggest motor sensations.

In any case, when we are dealing with qualities we are not concerned with the relation of a thing to consciousness, but with its relation to a determinate energetic context, whether that be physiological or physical. Qualities are certain permanent expectancies which we can have with reference to things under definite conditions. The purpose in question, whether mechanical or economic or æsthetic, must decide the importance of the qualities so far as that particular context is concerned. All qualities, in so far as they are qualities, must be taken as real. Their acknowledgment is a forced acknowledgment.

III.

There has been a tendency ever since Berkeley to confuse *sensations* and sense *qualities*, and on account of this confusion to insist upon the subjective character of the sense qualities and all qualities. Now, it is quite true that, in order to become significant, qualities must become a part of the context of our cognitive experience; but this does not prove that qualities have no other status than that of experience. Berkeley, we all admit, is wrong in supposing that, in knowing the qualities, the observer, whether human or superhuman, creates them. Qualities, we have seen, have their own energetic contexts, whether in relation to our organism or independent of it. We must take account of the changes of nature, its growth and decay, quite irrespective of whether we are conscious of it or not. Berkeley, on the other hand, truly states the relation of qualities to our cognitive attitudes. "To explain the phenomena is all one as to show why, upon such and such occasions, we are affected with such and such ideas."¹ But he is not warranted on that account in saying that the qualities are nothing but ideas. This is confusing the *causa cognoscendi*, or the reason for our knowing, with the *causa essendi*, or the reason for existence.

¹ *Principles of Human Knowledge*, § 50.

Taking a content as a quality, moreover, and taking it as a pure sensation are two entirely different attitudes. Taking it as a sensation means the bare awareness, for a subjective interest, without relation to an objective context, while taking it as a quality means taking it as a part of a specific context, fulfilling a purpose. Taking yellow as a sensation or having a yellow consciousness is a different attitude from yellow as a quality, as in recognizing gold as yellow. Whether there ever exists in experience a pure sensation, we will not argue here, but the logical distinction is none the less clear. The reference or attitude is quite different in the two cases. We can never say, therefore, that our sensations constitute the thing. Calling them sensations already indicates that they are taken in the context of a subjective interest, apart from the context of things. What is objective is the sensible qualities—the qualities as perceived and as they must be taken again under similar conditions. A sense quality is not a pure sensation, but the qualification of an interest of the will which implies the externality of the thing. Things are never merely sensed. Qualities are qualifications of a certain interest in the world *as sensed*. Thus we qualify our interest in the thing, chair, by the way it appears to the touch and the way it appears to sight, and to various other senses. We never make the mistake of eating, or clothing ourselves with sensations, but we deal with things as sensed. Part, at least, of Berkeley's convincingness lies in his playing between things as perceptions and things as perceived.

Furthermore, sensations persist even after the sensible continuities, which make us attribute them to things, no longer exist. This can be seen in complication—the sensory revival, which gives us the concrete perceptual object, on the reestablishing of sensible continuity; in illusion, where the wrong sensory complex is stimulated; or in hallucination, where the sensory context is intra-organically re-excited. In all these cases of the revival of sensory elements, we must distinguish between their existence as subjective states and their being taken as qualities of things. Sensations can be taken as qualities only as they are actually, or signify, sensible continuities.

Some sensations cannot be taken as sense qualities. Some sensations inform us, not of qualities, but of relations. Thus, the joint sensations, though they contribute a great deal to our consciousness of space relations, do not inform us about any new qualities of the thing taken account of. Other sensations, again, like the organic sensations in the more specific sense, such as hunger, thirst, nausea, do not inform us about the objects, but about the way in which the objects affect the welfare of our organism. They, therefore, come to enter as a part of our sense of value, instead of being taken as qualities of the thing. It seems, however, that the organic sensations do contribute a certain coefficient of existence, in the sense of presence, which may be regarded as qualifying the object. In such sensations as those of taste or smell, the accompanying affective tone seems the more important part of the situation.

Again, it is indifferent to some qualities that they may be sensed. Of these, the sense qualities may be regarded as signs. The reality of such qualities we take to be their emphasis in the extra-organic context. Our consciousness or perception of the explosion does not make the explosion occur, though it indicates the connection of the explosion with our sensible experience and so makes it significant to us. The knife in the drawer grows rusty and loses its sharpness, though we have not perceived it in the meantime. The chemical changes in such cases must be interpolated by ourselves, when we establish sensible continuity with the thing. Our physical instruments are often far more sensitive to certain changes than our gross senses. Where the senses, even equipped with telescopes fail to see stars, the more sensitive film of the camera still records them and makes it possible for us to count them. A large part of the qualities of nature we must take account of in this *a posteriori* fashion. Our taking account of the co-existence of qualities does not make either the co-existence or the qualities. The intellect, while a coupling agency, fulfils its function, not when it couples arbitrarily, as Kant would have us believe, for then we have illusions, but when it couples in such a way that our conjunctions tally with the conjunctions of qualities as ascertained through experience.

IV.

Sometimes *qualities* and *relations* have been identified. This does not seem the best way of dealing with the problem. We might, with more truth, identify qualities with one set of relations, namely, the energetic relations. A thing has been defined as the intersection point of its dynamic relations. But the qualities cannot be taken as merely the actual energetic relations; they must include what the thing can be in all possible energetic relations. That being the case, we cannot speak of the relations as constituting the thing. The thing is what it must be taken as, what it proves itself, in its determinate contexts. It is not a sum of abstract relations any more than of abstract qualities.

Some relations do not as such make a difference to qualities. Spatial or temporal or logical relations do not as such affect qualities. The quality, red, taken here or in China, 2000 A.D. or B.C., other conditions being the same, is the same red. It can be taken over and over again, in various logical contexts, and yet remain identical. If it appears different, this is due to the concrete situation, whether that of physical change or psychological association.

In discussing relations we must distinguish between internal relations and those that are external to the thing. We know little or nothing about the relation of qualities to each other within the thing. We can only say that the qualities, as a matter of fact, do interpenetrate in such ways or exist in such conjunctions and that, given similar conditions, we can anticipate their conjunctions. Some qualities, indeed, seem to imply each other. Thus color implies extension and form. Weight implies mass. But most of the co-existences we must ascertain experimentally, as they are found in actual experience. We cannot predict *a priori* the particular conjunctions. We can no longer even say that such qualities as extension and weight must invariably be present, since science has discovered energies such as electricity, where such qualities seem to be irrelevant.

If, again, we take up the external relations into which things may enter, these make up a large number. We have, on the one hand, those groups of relations which exist independently of our

cognitive experience, such as space, time, and the causal relations. Things exist in certain space clusters, in certain time sequences, and in certain reciprocal relations of causality to other things. We cannot regard these relations as qualities of things, though the reactions of things may vary with the relations. They vary with the distance, with the acceleration, and with the causal situation.

On the other hand, we have the significant relationships into which things may enter. Things can be taken over into our cognitive, æsthetic, and volitional contexts. These contexts do not directly alter the qualities of the things, but their significance depends upon their relations to these contexts. These relations may be systematic, as in the case of the working out of our logical, æsthetic, and economic purposes, or they may be merely additive. Any fact can be joined subjectively with any other fact by such particles as *and*, or *with*, or *plus*, or *minus*, and other relations of external interest.

We must remember, however, that these relations, whether additive (due to contiguous interest) or systematic (due to the internal development of purpose) do not affect the existential nature of the thing. They have to do with our attitude to the thing, its value for experience. Things can enter into or drop out of the context of our interest, but that is not in any case a condition of the existence of the thing. Thus things can have a double location. They exist in their own existential contexts and they also may exist in our contexts of significance. With reference to the learning process, this becomes a triple location, because the individual must ascertain and locate in his experience the results of social experience, in the form of science and institutions, which in turn depend upon the existential context of nature. Differences and likenesses are not properties of things; they are the relation of things to our cognitive context, the basis for our sorting of things into our ideal series, for taking them over into our systematic construction. Our qualitative and quantitative series, our units of measurement, exist merely for our convenience. They are only of use as they enable us to fixate certain co-existences. Our *taking* a quality in various contexts does not

on its own account alter the quality. We must be able to take the quality *a* in *axy* as the same character as *a* in *abc*. If not, science is impossible. Moreover, while qualities always exist in concrete contexts, our understanding can single out a quality for a certain purpose and substitute it for the whole for the sake of prediction and control. Thus to simplify our world is the task of science.

V.

We must distinguish finally between the *quality* and the *value* of things. They have too often been confused in past discussions. While qualities depend upon the will for their *significance*, values depend upon the will for their *existence*. Values are the functions which objects have in relation to the satisfaction of the will and may have to do with the intellectual satisfaction, the economic satisfaction, or the æsthetic satisfaction of the will. Ethical satisfaction there could not be in the case of things, for this presupposes inter-subjective relations, unless things first be socialized, as in the case of property. The values may be transient or permanent. An object may affect the organism in different ways at different times. Thus, music may be agreeable when we are at leisure or set ourselves to attend to music. It may be disagreeable when we try to concentrate our attention upon an examination. But the æsthetic value of music remains the same in either case, because this depends not upon the temporary organic equilibrium, but upon more permanent presuppositions of our mental constitution. Even while the music upsets us, we may recognize its beauty. It is not true that values are subjective in the sense of private and evanescent. Values are socially predictable as well as qualities, and so we have our cookery, our science of economics, and our art, which would be impossible if values were of a merely unique, private, and irreversible character. While values, however, vary with the will, qualities vary independently of the will. Our will cannot directly alter the color or the size of the thing. We cannot, by taking thought, add a cubit to our stature. Again, while the values of things vary with certain social conditions, such as supply and demand, as affecting the desirability of the thing, their qualities are not

altered through supply or demand. The qualities of gold have not been affected by the tremendous increase in the supply of gold and the consequent fluctuation of values.

Qualities vary in their own energetic contexts, whether sense contexts or extra-organic contexts, but they do not vary directly with the attitude of the will. While values, however, vary with the will, they may have a high degree of uniformity, as in the case of our biological values; even our æsthetic and ethical values show a large degree of constancy in the development of the race. Greek art is still beautiful to us, and the ethical ideals of the Hebrew prophets are still standard for us. On the other hand, some of the elements like radium would seem to be undergoing a radical change as regards their qualities.

We cannot attribute value or meaning to things on their own account as we can to selves. Agnosticism is quite right in maintaining that we cannot know the inwardness of things, but this is because nature has no inwardness. Things have no halo of value on their own account. The values of things exist, as Hegel would say, *an sich* and not *für sich*; that is, they exist for the spectator, and not for the things themselves. Things, so far as we know, have no purpose of their own in terms of which values can be measured. Man, and conscious wills like his, are the measure of things.

The epistemological idealist, who regards value as the fundamental category of existence, can only attribute reality to selves. In this, T. H. Green is quite logical. For having assumed that the reality of things is constituted by reflective experience, and finding that nature cannot itself be regarded as such an experience, he can only give it a locus in our own and the absolute experience. But this is confusing values and qualities. Things have qualities and relations of their own which we must acknowledge, even though they can only be treated as having value from the point of view of conscious wills. We gladly admit that values are real, but we cannot admit that the world of existence can altogether be stated in terms of value. Values seem to exist only in spots, while we must recognize qualities wherever nature requires adjustment on our part.

Even if we regard reality as fundamentally the valuable, we could not say with some philosophers that only the relative and fleeting is real, any more than we could say *a priori* that only the eternal is real. At least some of the values can be described, or taken twice, and so we have sciences of value. There are, no doubt, the fleeting values which escape our observation and description. But they lie outside the purpose of truth and must in the nature of things be ignored, so far as our cognitive interest is concerned. They must be appreciated to be owned at all. We can only point out the conditions under which they can be had.

Values may mediately condition the survival of things. This happens when the will selects on the basis of ideals. Things, when taken over into the context of our purposes, may survive or perish according as they succeed or do not succeed in expressing those purposes. Form, rather than the qualities of things, may determine the survival. Whether a statue shall survive as a statue depends upon its formal fitness rather than the properties of its material, which may be Parian marble. Whether a grove or a hill survives may again depend upon its relation to human purposes. If there is a conscious power in the large universe that exercises cosmic selection, then survival in the whole of existence, as well as in the world of human control, may depend in the last instance on formal fitness—fitness to an ideal constitution.

Natural beauty, as it seems to us, is an accidental framing of the existential contiguities of our environment. We limit nature arbitrarily by our interest and within those limits find an æsthetic purpose fulfilled, as in a mountain, or a lake, or a woodland scene. In the case of artificial beauty, on the other hand, the will has created its own conditions. Here the will has the advantage of being able to eliminate a great deal of detail, and thus produce a greater clearness and distinctness than the natural object usually has. Both artificial and natural beauty alike must suggest life and energy in harmonious interplay and equilibrium in order to fulfil the demands of the æsthetic instinct.

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